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PATENT ABSTRACTS OF JAPAN

(11)Publication number : 09-268917

(43)Date of publication of application : 14.10.1997

(51)Int.Cl.

F02B 25/20

F02B 33/04

F02M 19/00

(21)Application number : 08-106186

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(22)Date of filing : 03.04.1996

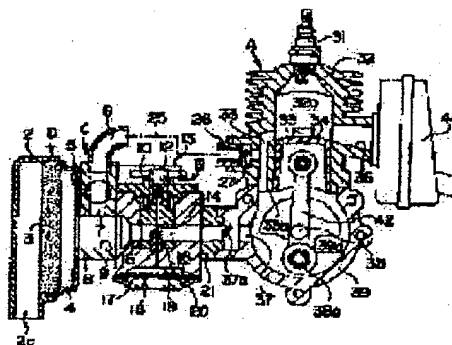
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(54) CARBURETTOR FOR 2-CYCLE INTERNAL COMBUSTION ENGINE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a carburettor for 2-cycle internal combustion engine in which its configuration is simple, small in size, an air control valve is cooperatively connected to a throttle valve of the carburettor and a degree of opening of a valve is not disturbed between air passages.

SOLUTION: An air passage 25 is connected to a part near a scavenging port 33 of a scavenging passage 33a for communicating a scavenging port 33 opened or closed by a piston 34 and a crank chamber 39a. A check valve 27 for allowing a flow of air directed toward a scavenging passage 33a is arranged at the air passage 25. An air control valve C for controlling an amount of air in the air passage 25 in cooperation with the throttle valve 15 is held between an air cleaner D and a carburettor B, and then the air cleaner D, the air control valve C and the carburettor B are integrally fixed to a main body A of the engine.



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LEGAL STATUS

[Date of request for examination] 31.03.1998

[Date of sending the examiner's decision of rejection] 24.05.2000

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

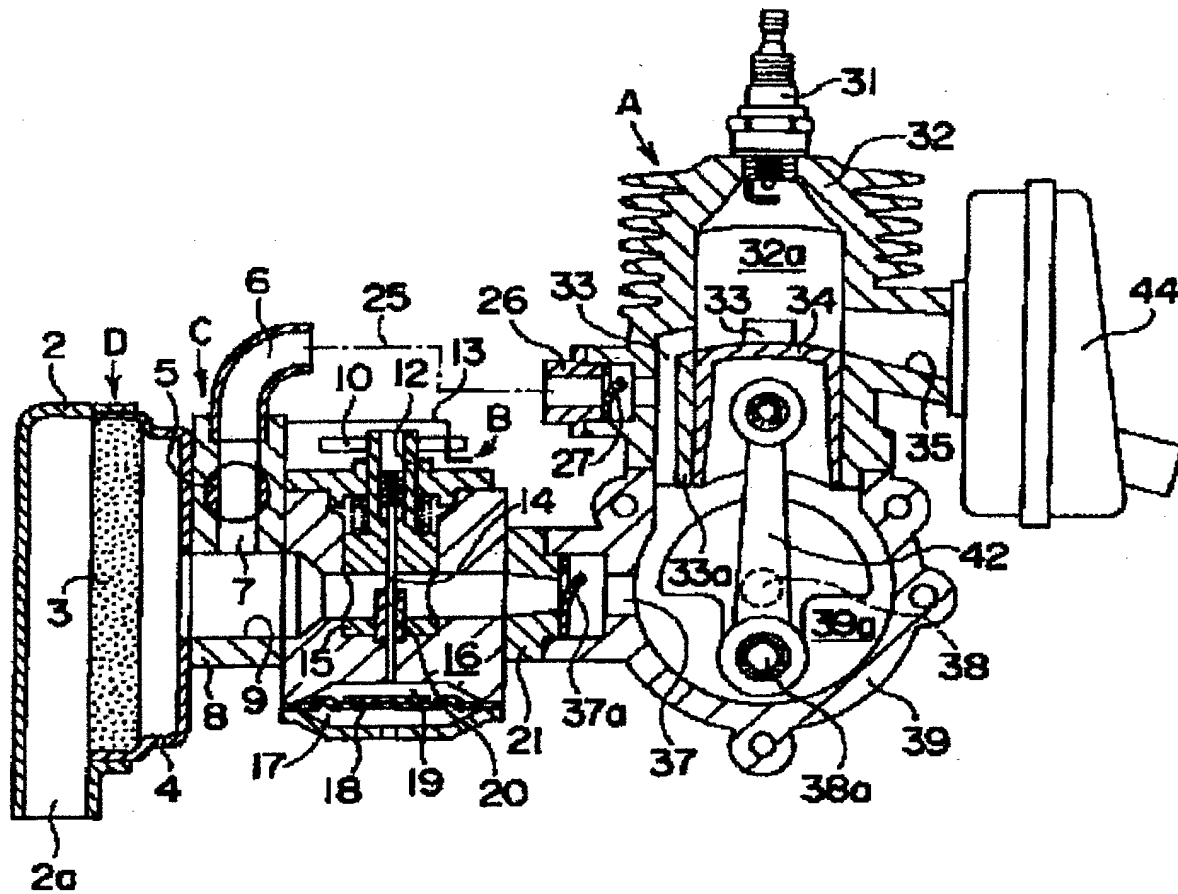
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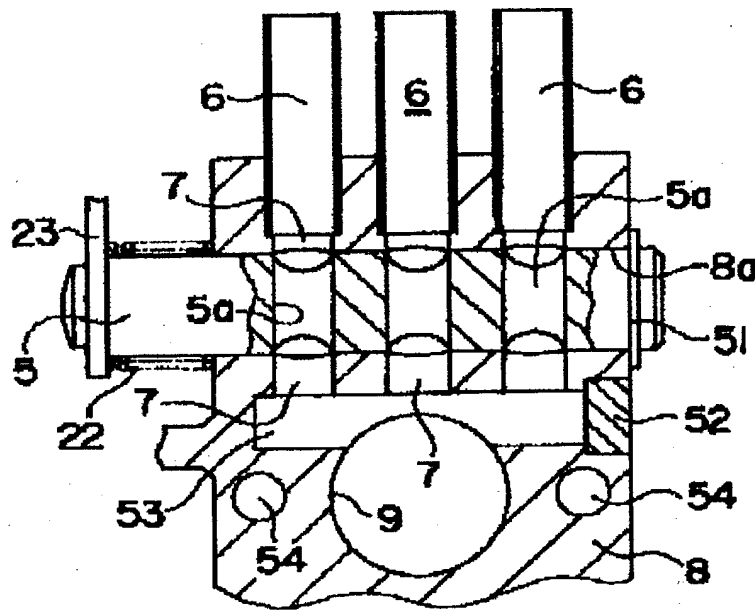
[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開平9-268917

(43) 公開日 平成9年(1997)10月14日

| (51) Int. Cl. ⁶ | 識別記号 | 庁内整理番号 | P I | 技術表示箇所 |
|----------------------------|------|--------|---------------|--------|
| F 0 2 B 25/20 | | | F 0 2 B 25/20 | A |
| 33/04 | | | 33/04 | C |
| F 0 2 M 19/00 | | | F 0 2 M 19/00 | Z |

審査請求 未請求 請求項の数4 F D (全 5 頁)

(21) 出願番号 特願平9-108186

(22) 出願日 平成8年(1996)4月3日

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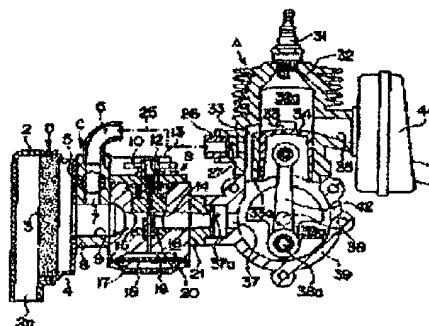
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(54) 【発明の名称】 2行程内燃機関用気化器

(57) 【要約】

【課題】 構造が簡単かつ小形であり、空気制御弁が気化器の絞り弁に連動連結し、空気通路間で弁開度にはばつきが生じない、2行程機関用気化器を得る。

【解決手段】 ピストン34により開閉される掃気口33とクランク室39aとを連通する掃気通路33aの掃気口33に近接する部分に空気通路25を接続し、空気通路25に掃気通路33aへ向う空気の流れを許す逆止弁27を設ける。空気清浄器Dと気化器Bとの間に絞り弁15に連動して空気通路25の空気量を制御する空気制御弁Cを挟み、空気清浄器Dと空気制御弁Cと気化器Bとを一体的に機関本体Aに取り付ける。



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【特許請求の範囲】

【請求項1】ピストンにより閉閉される掃気口とクランク室とを連通する掃気通路の掃気口に近接する部分に空気通路を接続し、該空気通路に掃気通路へ向う空気の流れを許す逆止弁を設けた2行程内燃機関において、空気清浄器と気化器との間に絞り弁に連動して空気通路の空気量を制御する空気制御弁を挟み、空気清浄器と空気制御弁と気化器とを一体的に機関本体に取り付けたことを特徴とする2行程内燃機関用気化器。

【請求項2】前記空気制御弁の空気出口を前記掃気通路の掃気口に近接する部分に接続した、請求項1に記載の2行程内燃機関用気化器。

【請求項3】前記空気制御弁の空気出口と前記掃気通路の掃気口に近接する部分とを共通の空気通路または掃気口と同数の独立した空気通路により接続した、請求項1に記載の2行程内燃機関用気化器。

【請求項4】前記空気制御弁は回転型絞り弁である、請求項1に記載の2行程内燃機関用気化器。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明はピストンの昇降運動ないし往復運動に伴うクランク室の圧力変動を利用し、混合気をクランク室へ吸入するとともに、クランク室で混合気を加圧してシリンダの内部へ供給する、クランク室圧縮式の2行程内燃機関に通じた気化器に関するものである。

【0002】

【従来の技術】従来のクランク室圧縮式2行程内燃機関では、クランク室で加圧された混合気を掃気口からシリンダないし燃焼室へ供給することにより、シリンダに残っている燃焼ガスを排出（掃気）するものであるため、燃焼ガスの掃気を良好に行うとすれば、シリンダへ流入した混合気が燃焼ガスと一緒に掃気口から大気中へ排出されるという、所謂吹抜け現象が発生する。混合気の吹抜け現象は、未燃成分である炭化水素（HC）が排出ガスに多量に含まれることになり、また無駄に消費される燃料量が多くなる。

【0003】吹抜け現象を抑えるには、ピストンによる掃気口の閉時期を早めればよいが、シリンダの内部に残る燃焼ガスが多くなり、不完全燃焼や失火などによる不整燃焼が増加し、結局排出ガスに含まれる炭化水素が増加し、機関出力が低下するという欠点がある。

【0004】そこで、特開平7-139358号公報、特開平7-189704号公報、特開平7-269356号公報などに開示される2行程内燃機関では、掃気通路の掃気口に近接する部分に空気通路を接続し、該空気通路に逆止弁を設け、該空気通路の空気流量を機関の絞り弁操作に連動して調整するようにしている。上述の2行程内燃機関によれば、ピストンの上昇時クランク室が負圧になると、気化器からの混合気が吸気口からクランク室へ吸引され、同時に空気通路の空気が逆止弁を押して閉じ、掃気通路ないし掃気口へ流入する。混合気の爆発によりピストンが下降すると、下死点付近で掃気口が開いて燃焼ガスが排出される。続いて掃気口が開くと、まずクランク室の正圧により掃気通路の空気がシリンダへ供給され、次いでクランク室の混合気がシリンダへ供給される。掃気口が閉じている間は、掃気口からシリンダへ当初噴出する空気のみが掃気口へ流出し、続いて混合気が掃気口へ通ずるまでに掃気口が閉じる。

【0005】上述の2行程内燃機関は、気化器の吸気路を開閉する絞り弁を調節する軸に結合した腕が、調整機構の蝶弁の軸に結合した腕とロッドにより連結され、絞り弁と蝶弁とは連動して開閉するように構成される。しかし、気化器の絞り弁と調整機構の蝶弁を連動連結するため、複数のロッドを必要とし、構造が複雑になる。特に、3つの掃気口をもつ2行程内燃機関では、掃気口と同数の調整機構またはロッドが必要になり、構造が非常に複雑になるだけでなく、調整機構相互間で蝶弁の開度ばらつきが生じ、絞り弁との同期動作（同調）が難しくなる。長期使用の内に絞り弁と連動する蝶弁の開度が変化し、機関の掃気状況が変化することがある。機関本体に調整機構を設けるために、調整機構が機関本体から突出し、全体が大形になる。また、異物が各空気通路から機関へ侵入しないように、独立する各空気通路にそれぞれ空気清浄器を装着することは、取付空間などの制約から難しい。

【0006】

【発明が解決しようとする課題】本発明の課題は上述の問題に鑑み、構成が簡単かつ小形であり、空気制御弁が気化器の絞り弁に連動連結し、各空気通路間で弁開度にばらつきが生じない、2行程内燃機関用気化器を提供することにある。

【0007】

【課題を解決するための手段】上記課題を解決するために、本発明の構成はピストンにより閉閉される掃気口とクランク室とを連通する掃気通路の掃気口に近接する部分に空気通路を接続し、該空気通路に掃気通路へ向う空気の流れを許す逆止弁を設けた2行程内燃機関の気化器において、空気清浄器と気化器との間に絞り弁に連動して空気通路の空気量を制御する空気制御弁を挟み、空気清浄器と空気制御弁と気化器とを一体的に機関本体に取り付けたことを特徴とするものである。

【0008】

【発明の実施の形態】本発明では空気清浄器と空気制御弁と気化器とが一体的に機関本体に取り付けられ、気化器の絞り弁と空気制御弁とは1つのロッドにより連結され、絞り弁が開くにつれて、混合気が機関のクランク室へ吸入され、空気制御弁を通過した空気が空気通路を経て各掃気通路の掃気口に近接する部分へ吸入される。

【0009】

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【実施例】図1は本発明の一実施例に係る気化器を備えた2行程内燃機関の側面断面図である。機関本体Aはクランクケース39の上部にシリンダ32を結合され、シリンダ32にピストン34を昇降可能に嵌合される。クランクケース39に支持されたクランク軸38の端38aに、連接棒42によりピストン34が連結され、シリンダ32の上端部とピストン34との間に燃焼室32aが仕切られる。シリンダ32の側部に点火栓31が装着され、シリンダ32の壁部に、ピストン34の下死点で開く排気口35と掃気口33が形成される。排気口35は排気マフラ44を経て大気と連通し、掃気口33は後述する掃気通路33aを経てクランク室39aへ連通される。

【0010】気化器Bはクランクケース39の吸気口37に、吸気弁（リード弁）37aを備えた断熱管21を介して取り付けられる。詳しくは、2行程内燃機関のクランクケース39に対し断熱管21を介して、気化器Bと空気制御弁Cと空気清浄器Dとが一体的に、図示していない本取付ボルトにより取り付けられる。気化器Bは本体16の吸気路を構成する円筒部に、絞り弁15を有する絞り弁レバー10を嵌挿し、絞り弁15の上端の軸部12に絞り弁レバー10を結合される。本体16の下部には横18により定圧燃焼室19と大気室17とが区画される。定圧燃焼室19には図示しない燃料槽の燃料が燃料ポンプにより定圧供給され、常時一定圧に保持される。定圧燃焼室19から燃料ノズル20が絞り弁15の絞り孔へ突出される。絞り弁15の軸部12から絞り孔へ突出する燃料ノズル20へ嵌挿され、燃料噴孔の開度を加減するようになっている。絞り弁レバー10をばねの力に依りて回転すると、絞り弁15の開度が増加し、同時に絞り弁レバー10と本体16の上端壁との間に形成したカム機構により、絞り弁15と一緒に燃料ノズル20が上昇し、燃料ノズルの燃料噴孔の開度が増加する。

【0011】本発明によれば、外部から掃気通路33aの掃気口33に近接する部分への空気の流れを許す逆止弁27がシリンダ32の壁部に設けられる。このため、逆止弁27を備えた接続管26は一端を掃気通路33aの掃気口33に近接する部分へ連通され、他端を空気通路25、空気制御弁C、吸気路9、空気清浄器Dを経て大気へ連通される。

【0012】空気制御弁Cは吸気路9を有するブロック状の本体8の上半部に、吸気路9から上方へ延びかつ弁室8a（図3）を構成する掃気口33と同数の弁通路7を備えられる。弁通路7の上端は接続管6を結合される。図3に示すように、本体8の吸気路9と直交する円筒状の弁室8aに、棒状の弁体5が回転可能に嵌挿される。弁体5は弁室8aを横切る弁通路7と連通可能な弁通路5aを備えており、弁体5を回転すると弁通路7の面積が変化する。各弁通路7の下端は、吸気路9と交差

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する通路53へ連通する。通路53の端部は蓋52により閉鎖される。空気制御弁Cの空気出口すなわち接続管6は管からなる空気通路25により、シリンダ32の壁部に取り付けた接続管26へ接続される。

【0013】空気制御弁Cの本体8には吸気路9を挟んで対称な位置にボルト締結孔54が設けられる。空気制御弁Cは単一の回転型絞り弁から構成され、弁室8aに嵌挿した弁体5の一端に抜止め用止め輪51を係止し、弁体5の他端にレバー23を結合し、弁体5の外周部に巻き付けた戻しばね22の一端を本体8に、他端をレバー23にそれぞれ係止される。図2に示すように、気化器Bの絞り弁レバー10と空気制御弁Cのレバー23とは、ロッド13により最短距離で連結される。絞り弁レバー10を前方へ操作すると、空気制御弁Cも開き、掃気口33への空気量を増加させる。

【0014】図1に示すように、空気清浄器Dは2分割体からなる箱形のケース2、4を、両者の間にフィルタ3を挟んで結合し、ケース2の取入口2aから吸入された空気は、フィルタ3、ケース4、空気制御弁Cと気化器Bの各吸気路9、断熱管21、吸気弁37aを経て吸気口37へ流れる。

【0015】次に、本発明による2行程内燃機関用気化器の作動について説明する。ピストン34が上死点へ達するまでに、混合気が吸気口37からクランク室39aへ充填され、空気が接続管26から掃気通路33aと掃気口33へ充填される。一方、ピストン34が上死点へ達する直前の状態で、シリンダ32には圧縮された混合気が存在する。シリンダ32の圧縮された混合気が点火栓31により点火されると、シリンダ32の内部で混合気の爆発が生じ、ピストン34が下降する。ピストン34が下降する時、クランク室39aの混合気が加圧され、同時にクランク室39aの圧力が掃気通路33aを経て掃気口33へ伝達され、掃気口33の空気も加圧される。

【0016】ピストン32がさらに下降すると、排気口35が開き始め、シリンダ32の燃焼ガスが排気口35、排気マフラ44を経て大気中へ排出される。排気口35が開くとすぐ掃気口33が開き始め、掃気口33の加圧された空気がシリンダ32へ流入し、シリンダ32に残留している燃焼ガスを排気口35へ押し出す掃気作用を行う。次いで、クランク室39aの混合気が掃気通路33a、掃気口33を経てシリンダ32へ流入する。掃気口33からシリンダ32へ流入する空気と、クランク室39aから掃気通路33a、掃気口33を経てシリンダ32へ流入する混合気とは、混合しない分離した状態で空気が先に流入し、次いで混合気が流入する。

【0017】したがって、燃焼ガスと一緒に排気口35から排出されるのは、シリンダ32へ先に流入した空気だけであり、空気の後からシリンダ32へ流入する混合気はシリンダ32に滞留する。つまり、混合気がシリン

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ダ32へ流入するのと相前後して排気口35が閉じるので、混合気が直接排気口35を経て大気中へ流出する吹抜け現象は起こらない。排気口35の開閉期を遅くすることにより、燃焼ガスの掃気が確実になり、機関の出力向上に大きく寄与できる。しかも、排出ガスに含まれる未燃炭成分(HC)の量が低減され、燃料の無駄がなくなる。

【0018】次に、ピストン34が下死点から上昇する行程へ移り、上死点付近に達すると、クランク室39aが負圧状態になり、吸気口37の吸気弁37aが開き、気化器Bで生成された混合気が吸気口37からクランク室39aへ吸入される。同時に前回の行程で掃気口33へ流入しかつ残留している混合気がクランク室39aへ吸い込まれる。また、クランク室39aの負圧により逆止弁27が開かれ、空気が空気清浄器Dから空気制御弁C、空気通路25、逆止弁27、掃気通路33aを経てクランク室39aへ吸入される。こうして、ピストン34がほぼ上死点へ達すると、クランク室39aには混合気が充填され、掃気口33には空気だけが充填された状態になる。

【0019】本発明によれば上述のように、ピストン34の上昇に伴ってクランク室39aと掃気通路33aが接続管26を経て掃気通路33aと掃気口33へ吸入される。掃気通路33aと掃気口33へ空気を導入する手段は、大気に直接連通する接続管26を設け、接続管26の内部に逆止弁27を設けただけの簡単な構造でもよい。掃気通路33aと掃気口33への空気の導入は、ピストン34の上昇行程のほぼ全期間に亘り行われるようになり、掃気通路33aと掃気口33への空気充填効率

が向上し、燃焼ガスを掃気する際に、掃気通路33aと掃気口33から燃焼室32aへ流入する空気の勢が強くなり、掃気性能が向上する。

【0020】なお、上述の実施例において、気化器Bと空気制御弁Cとは別個の空気清浄器を接続してもよい。また、図1には携帯作業機に多用される膜型気化器を例示したが、本発明はこの種の気化器に限定されるものではない。

【0021】

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【発明の効果】本発明は上述のように、空気清浄器と気化器との間に絞り弁に連動して空気通路の空気量を制御する空気制御弁を挟み、空気清浄器と空気制御弁と気化器とを一体的に機関本体に取り付けたことにより、空気制御弁と気化器へ流れる空気が単一の空気清浄器で清浄化され、機関全体の大形化を回避でき、気化器や空気清浄器として従来品をそのまま利用できる利点がある。

【0022】気化器の絞り弁と空気制御弁とが最短距離で1本のロッドにより連結されるので、この点でも機関全体の大形化を回避できる。

【0023】空気制御弁の基空気出口と各種気通路の空気入口とを接続する各空気通路の長さを最適値に設定でき、長期使用の内に絞り弁と空気制御弁の同期動作が変化することはない。

【0024】空気制御弁が回転型絞り弁からなるので、製作が容易で空気制御弁の大形化を回避できる。

【図面の簡単な説明】

【図1】本発明に係る気化器を備えた2行程内燃機関の左側面断面図である。

【図2】同2行程内燃機関の平面断面図である。

【図3】図2の線3A-3Aによる気化器の空気制御弁の正面断面図である。

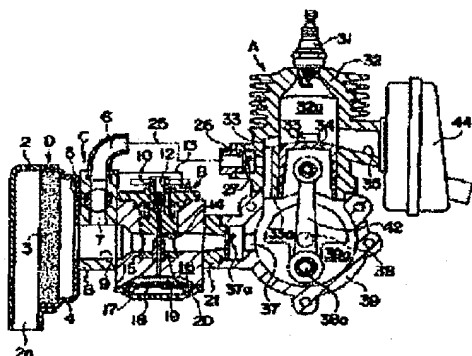
【符号の説明】

A: 機関本体 B: 気化器 C: 空気制御弁 D: 空気清浄器 5: 弁体 5a: 弁通孔 6: 接続管 7: 弁通路 8: 本体 9: 吸気路 10: 絞り弁レバー 11: 軸部 12: ロッド 13: 棒弁 14: 棒弁 15: 絞り弁 16: 気化器本体 17: 大気室 18: 膜 19: 定圧燃料室 20: 燃料ノズル 21: 断熱管 22: 炭じばね 23: レバー 25: 空気通路 26: 接続管 27: 逆止弁 31: 点火栓 32: シリンダ 32a: 燃焼室 33: 掃気口 33a: 掃気通路 34: ピストン 35: 排気口 37: 吸気口 37a: 吸気弁 38: クランク軸 38a: 軸 39: クランクケース 39a: クランク室 42: 連接棒 44: 排気マフラ 51: 止め輪 52: 蓋 53: 通路

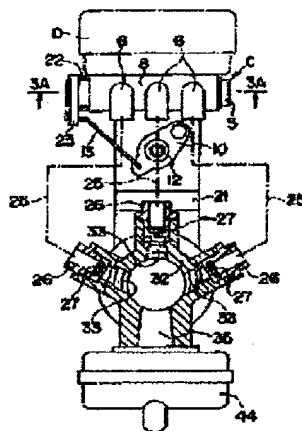
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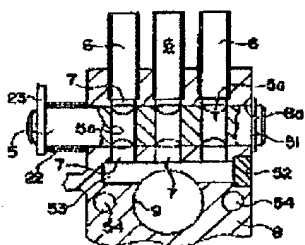
【図1】



【図2】



【図3】



フロントページの続き

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*** NOTICES ***

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1. This document has been translated by computer. So the translation may not reflect the original precisely.

2. **** shows the word which can not be translated.

3. In the drawings, any words are not translated.

TECHNICAL FIELD

[Field of the Invention] This invention relates to the carburetor of the crank case compression equation which pressurizes gaseous mixture in a crank case and is supplied to the interior of a cylinder which fitted the internal combustion engine about two lines while it uses the pressure fluctuation of the crank case accompanying rise-and-fall motion thru/or a reciprocating motion of a piston and inhales gaseous mixture to a crank case.

PRIOR ART

[Description of the Prior Art] The conventional crank case compression equation of about two lines, in an internal combustion engine, since it is what discharges ***** combustion gas in a cylinder by supplying the gaseous mixture pressurized in the crank case from a scavenging port to a cylinder thru/or a combustion chamber (scavenging air), if combustion gas is scavenged good, the so-called blow-by phenomenon in which the gaseous mixture which flowed into the cylinder is discharged into atmospheric air from an exhaust port together with combustion gas occurs. The fuel quantity of the blow-by phenomenon of gaseous mixture which the hydrocarbon (HC) which is a non-burned component will be contained in emission gas so much, and is consumed vainly increases. [0003] Although what is necessary is just to bring forward the close stage of an exhaust port with a piston in order to suppress a blow-by phenomenon, the combustion gas which remains inside a cylinder increases, the irregular combustion by incomplete combustion, a flame failure, etc. increases, the hydrocarbon contained in emission gas after all increases, and there is a difficulty that an engine output declines.

[0004] Then, an air duct is connected to the part close to the scavenging port of a scavenge air passage indicated by JP,7-139358,A, JP,7-189704,A, JP,7-269356,A, etc., and a check valve is prepared in this air duct, and throttle valve actuation of an engine is interlocked with and he is trying to adjust the air flow rate of this air duct of about two lines in an internal combustion engine. If a crank case becomes negative pressure like 2 line at the time of lifting of a piston according to the above-mentioned internal combustion engine, the gaseous mixture from a carburetor is attracted from an inlet port to a crank case, and simultaneously, the air of an air duct will push a check valve open and will flow into a scavenge air passage thru/or a scavenging port. If a piston descends by explosion of gaseous mixture, an exhaust port will open near a bottom dead point, and combustion gas will be discharged. Then, if a scavenging port opens, the air of a scavenge air passage will be first supplied to a cylinder by the positive pressure of a crank case, and, subsequently the gaseous mixture of a crank case will be supplied to a cylinder. While the exhaust port is open, only the air spouted from a scavenging port to a

cylinder at the beginning flows into an exhaust port, and by the time gaseous mixture reaches to an exhaust port continuously, an exhaust port will close.

[0005] An internal combustion engine is connected with the arm and rod which the arm combined with the shaft which insists upon the above-mentioned throttle valve which opens and closes the inhalation-of-air way of a carburetor combined with the shaft of the butterfly valve of an adjustment device, and a throttle valve and the butterfly valve of about two lines are constituted so that it may interlock, open and close. However, in order to carry out interlocking connection of the throttle valve of a carburetor, and the butterfly valve of an adjustment device, two or more rods are needed and structure becomes complicated. Like 2 line, especially by the internal combustion engine with three scavenging ports, the adjustment device or rod of a scavenging port and the same number is needed, structure not only becomes very complicated, but dispersion arises in the opening of a butterfly valve between adjustment devices, and synchronous operation (alignment) with a throttle valve becomes difficult. The opening of the butterfly valve interlocked with a throttle valve may change, and an engine's scavenging-air situation may change to the inside of a long-term activity. In order to prepare an adjustment device in an engine body, a projection and the whole become [an adjustment device] large-sized from an engine body. Moreover, it is difficult from constraint of mounting space etc. to equip with an air cleaner each air duct which becomes independent, respectively so that a foreign matter may not infiltrate into an engine from each air duct.

EFFECT OF THE INVENTION

[Effect of the Invention] By having inserted the pneumatic control valve which is interlocked with a throttle valve between an air cleaner and a carburetor, and controls the air content of an air duct as mentioned above, and having attached the air cleaner, the pneumatic control valve, and the carburetor in the engine body in one, the air which flows to a pneumatic control valve and a carburetor is defecated with a single air cleaner, and this invention can avoid the whole engine's large-sized-ization, and has the advantage which can use elegance as it is conventionally as a carburetor or an air cleaner.

[0022] Since the throttle valve and pneumatic control valve of a carburetor are connected with one rod by the minimum distance, the whole engine's large-sized-ization is avoidable also at this point.

[0023] The die length of each air duct which connects each air outlet of a pneumatic control valve and the air inlet of each scavenge air passage can be set as an optimum value, and the synchronous operation of a throttle valve and a pneumatic control valve does not change to the inside of a long-term activity.

[0024] Since a pneumatic control valve consists of a revolution mold throttle valve, a fabrication is easy and can avoid large-sized-ization of a pneumatic control valve.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] It is in the thing which the technical problem of this invention has an easy and small configuration, a pneumatic control valve carries out interlocking connection in view of an above-mentioned problem at the throttle valve of a carburetor, and dispersion does not produce in whenever [valve-opening] between each air duct and for which the carburetor for internal combustion engines of about two

lines is offered.

MEANS

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, the configuration of this invention connects an air duct to the part close to the scavenging port of the scavenge air passage which opens for free passage the scavenging port opened and closed by the piston and a crank case. In the carburetor of the like [2 line] internal combustion engine which prepared the check valve which allows the flow of the other air in the scavenge air passage at this air duct The pneumatic control valve which is interlocked with a throttle valve between an air cleaner and a carburetor, and controls the air content of an air duct is inserted, and it is characterized by attaching an air cleaner, a pneumatic control valve, and a carburetor in an engine body in one.

[0008]

[Embodiment of the Invention] In this invention, an air cleaner, a pneumatic control valve, and a carburetor are attached in an engine in one, gaseous mixture is inhaled to an engine's crank case, and the throttle valve and pneumatic control valve of a carburetor are inhaled to the part to which the air which passed the pneumatic control valve approaches the scavenging port of each scavenge air passage through an air duct as they are connected with one rod and a throttle valve opens them.

[0009]

EXAMPLE

[Example] Drawing 1 is a like [2 line] internal combustion engine's side-face sectional view equipped with the carburetor concerning one example of this invention. The engine body A has a cylinder 32 combined by the upper part of a crank case 39, and fitting of the rise and fall of a piston 34 of it is made possible to a cylinder 32. A piston 34 is connected with arm 38a of the crankshaft 38 supported by the crank case 39 by the connecting rod 42, and combustion chamber 32a is divided into it between the upper bed section of a cylinder 32, and a piston 34. The head of a cylinder 32 is equipped with an ignition plug 31, and the exhaust port 35 and scavenging port 33 which are opened to the wall of a cylinder 32 in the bottom dead point of a piston 34 are formed. An exhaust port 35 is open for free passage to atmospheric air through the exhaust air muffler 44, and a scavenging port 33 is opened for free passage through scavenge air passage 33a mentioned later to crank case 39a.

[0010] Carburetor B is attached in the inlet port 37 of a crank case 39 through the heat insulation tubing 21 equipped with inlet-valve (reed valve) 37a. In detail, Carburetor B, and the pneumatic control valve C and air cleaner D of about two lines are attached with two mounting bolts which are not illustrated in one through the heat insulation tubing 21 to an internal combustion engine's crank case 39. Carburetor B fits the throttle valve 15 which has a drawing hole in the body which crosses the inhalation-of-air way of a body 16, and has a throttle lever 10 combined with the shank 12 of the upper bed of a throttle valve 15. The constant-pressure combustion chamber 19 and the atmospheric-air room 17 are divided by the lower part of a body 16 with the film 18. The fuel of the fuel tank which is not illustrated is serially supplied to the constant-pressure combustion chamber 19 by the fuel pump, and it is always held at 1 constant pressure. A fuel nozzle 20

projects from the constant-pressure combustion chamber 19 to the drawing hole of a throttle valve 15. Intermediary **** [as] to which **** 14 which extracts from the shank 12 of a throttle valve 15, and projects to a hole is fitted in a fuel nozzle 20, and adjusts the opening of a fuel nozzle hole. If the force of a spring is resisted and a throttle lever 10 is rotated, the opening of a throttle valve 15 increases, according to the cam mechanism simultaneously formed between the throttle lever 10 and the upper bed wall of a body 16, **** 14 will go up together with a throttle valve 15, and the opening of the fuel nozzle hole of a fuel nozzle will increase.

[0011] According to this invention, the check valve 27 which allows the flow of the air to the part which approaches the scavenging port 33 of scavenge air passage 33a from the exterior is formed in the wall of a cylinder 32. For this reason, it is open for free passage to the part which approaches the scavenging port 33 of scavenge air passage 33a in an end, and the communication trunk 26 equipped with the check valve 37 is opened for free passage to atmospheric air through an air duct 25, a pneumatic control valve C, the inhalation-of-air way 9, and an air cleaner D in the other end.

[0012] It has a pneumatic control valve C in the scavenging port 33 and the valve path 7 of the same number which extend upwards from the inhalation-of-air way 9 in the Johan section of the body 8 of the letter of a block which has the inhalation-of-air way 9, and cross valve chest 8a (drawing 3) in it. The upper bed of the valve path 7 has a communication trunk 6 combined. As shown in drawing 3 , the rod-like valve element 5 is fitted in valve chest 8a of the shape of a cylinder which intersects perpendicularly with the inhalation-of-air way 9 of a body 8 pivotable. The valve element 5 is equipped with valve through-hole 5a which crosses valve chest 8a and in which the valve path 7 and a free passage are possible, and if a valve element 5 is rotated, the area of the valve path 7 will change. The soffit of each valve path 7 is open for free passage to the path 53 which intersects the inhalation-of-air way 9. The edge of a path 53 is closed by the lid 52. It is connected to the communication trunk 26 attached in the wall of a cylinder 32 by the air duct 25 which consists of tubing, the air outlet 6, i.e., the communication trunk, of a pneumatic control valve C.

[0013] The bolt insertion hole 54 is formed in a symmetric position across the inhalation-of-air way 9 at the body 8 of a pneumatic control valve C. A pneumatic control valve C combines a lever 23 with the other end of a valve element 5, it consists of single revolution mold throttle valves, stops the snap ring 51 for ***** at the end of the valve element 5 fitted in valve chest 8a, and has the end of the return spring 22 twisted around the heel of a valve element 5 stopped by the body 8, and a lever 23 stops the other end, respectively. As shown in drawing 2 , the throttle lever 10 of Carburetor B and the lever 23 of a pneumatic control valve C are connected by the minimum distance with a rod 13. When a throttle lever 10 is operated in the open direction, a pneumatic control valve C makes the air content to an aperture and a scavenging port 33 increase.

[0014] As shown in drawing 1 , the air which the air cleaner D combined among both the cases 2 and 4 of the cube type which consists of segmenter for 2 minutes on both sides of the filter 3, and was inhaled from intake 2a of a case 2 flows to an inlet port 37 through a filter 3, a case 4, each inhalation-of-air way 9 of a pneumatic control valve C and Carburetor B, the heat insulation tubing 21, and inlet-valve 37a.

[0015] Next, actuation of the carburetor for 2 stroke internal combustion engines by this invention is explained. By the time a piston 34 reaches to a top dead center, it will fill up

with gaseous mixture from an inlet port 37 to crank case 39a, and it fills up with air from a communication trunk 26 to scavenge air passage 33a and a scavenging port 33. On the other hand, the compressed gaseous mixture exists in a cylinder 32 in the condition just before a piston 34 reaches to a top dead center. If the gaseous mixture into which the cylinder 32 was compressed is lit by the ignition plug 31, explosion of gaseous mixture will arise inside a cylinder 32, and a piston 34 will descend. When a piston 34 descends, the gaseous mixture of crank case 39a is pressurized, simultaneously, the pressure of crank case 39a is transmitted to a scavenging port 33 through scavenge air passage 33a, and the air of a scavenging port 33 is also pressurized.

[0016] If a piston 32 descends further, the combustion gas of a cylinder 32 will be discharged for an exhaust port 35 into atmospheric air through an exhaust port 35 and the exhaust air muffler 44 at the beginning of an aperture. Shortly after an exhaust port 35 opens, the air by which the scavenging port 33 was pressurized will flow into a cylinder 32, and a scavenging port 33 will perform scavenging which extrudes the combustion gas which remains in the cylinder 32 to an exhaust port 35 at the beginning of an aperture. Subsequently, the gaseous mixture of crank case 39a flows into a cylinder 32 through scavenge air passage 33a and a scavenging port 33. Air flows previously in the condition which does not mix the air which flows into a cylinder 32 from a scavenging port 33, and the gaseous mixture which flows into a cylinder 32 through scavenge air passage 33a from crank case 39a, and a scavenging port 33 of having dissociated, and, subsequently gaseous mixture flows.

[0017] Therefore, only the air which flowed into the cylinder 32 previously is discharged from an exhaust port 35 together with combustion gas, and the gaseous mixture which flows into a cylinder 32 after air piles up in a cylinder 32. That is, since it gets mixed up with gaseous mixture flowing into a cylinder 32 and an exhaust port 35 closes, the blow-by phenomenon in which gaseous mixture flows out into atmospheric air through the direct exhaust port 35 does not happen. By making the open stage of an exhaust port 35 late, scavenging air of combustion gas becomes certain and can contribute to the improvement in an output of an engine greatly. And the amount of the non-burned component (HC) contained in emission gas is reduced, and the utility of a fuel is lost.

[0018] Next, if it moves to the stroke in which a piston 34 goes up from a bottom dead point and reaches near a top dead center, crank case 39a will be in a negative pressure condition, and the gaseous mixture by which inlet-valve 37a of an inlet port 37 was generated with the aperture and Carburetor B will be inhaled from an inlet port 37 to crank case 39a. The gaseous mixture which flowed into the scavenging port 33 and remains in the last stroke simultaneously is returned to crank case 39a. Moreover, a check valve 27 is opened by the negative pressure of crank case 39a, and air is inhaled to crank case 39a through a pneumatic control valve C, an air duct 25, a check valve 27, and scavenge air passage 33a from an air cleaner D. In this way, if a piston 34 reaches to a top dead center mostly, crank case 39a was filled up with gaseous mixture, and a scavenging port 33 will be filled up only with air.

[0019] According to this invention, as mentioned above, if ***** crank case 39a and scavenge air passage 33a will be in a negative pressure condition to lifting of a piston 34, a check valve 27 will be opened and external air will be inhaled through a communication trunk 26 to scavenge air passage 33a and a scavenging port 33. A means to introduce air to scavenge air passage 33a and a scavenging port 33 may form the

communication trunk 26 which is directly open for free passage to atmospheric air, and the easy structure where the check valve 27 was formed in the interior of a communication trunk 26 is sufficient as it. In case [of / like the lifting line of a piston 34] it comes to be mostly carried out for the whole term, the air charging efficiency to scavenge air passage 33a and a scavenging port 33 improves and combustion gas is scavenged, the vigor of the air which flows into combustion chamber 32a from scavenge air passage 33a and a scavenging port 33 becomes strong, and the scavenging-air engine performance of installation of the air to scavenge air passage 33a and a scavenging port 33 improves.

[0020] In addition, in an above-mentioned example, a separate air cleaner may be connected with Carburetor B at a pneumatic control valve C. Moreover, although the membrane type carburetor used abundantly at a pocket activity machine was illustrated to drawing 1, this invention is not limited to this kind of carburetor.

[0021]

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is a like [2 line] internal combustion engine's left lateral sectional view equipped with the carburetor concerning this invention.

[Drawing 2] It is this 2 stroke internal combustion engine's flat-surface sectional view.

[Drawing 3] It is the transverse-plane sectional view of the pneumatic control valve of the carburetor by line 3A-3A of drawing 2.

[Description of Notations]

A: Engine body B: Carburetor C: Pneumatic control valve D: Air cleaner 5: Valve element 5a: Valve through-hole 6: Communication trunk 7: Valve path 8: Body 9: Inhalation-of-air way 10: Throttle lever 12: Shank 13: Rod 14: **** 15: Throttle valve 16: Carburetor body
17: atmospheric-air room 34: -- a piston -- 35:exhaust-port 37:inlet-port 37a: -- inlet valve 18: -- film 19:constant-pressure combustion chamber 20: -- fuel nozzle 21:heat insulation tubing 22: -- return spring 23: -- lever 25: -- air duct 26: -- communication trunk 27: -- check valve 31: -- ignition plug 32: -- cylinder 32a: -- combustion chamber 33: -- scavenging port 33a: -- scavenge air passage
38: Crankshaft 38a: Arm 39: Crank case 39a: Crank case
42: Connecting rod 44: Exhaust air muffler 51: Snap ring 52: Lid 53: Path

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the carburetor of the crank case compression equation which pressurizes gaseous mixture in a crank case and is supplied to the interior of a cylinder which fitted the internal combustion engine about two lines while it uses the pressure fluctuation of the crank case accompanying rise-and-fall motion thru/or a reciprocating motion of a piston and inhales gaseous mixture to a crank case.

[0002]

[Description of the Prior Art] The conventional crank case compression equation of about

two lines, in an internal combustion engine, since it is what discharges ***** combustion gas in a cylinder by supplying the gaseous mixture pressurized in the crank case from a scavenging port to a cylinder thru/or a combustion chamber (scavenging air), if combustion gas is scavenged good, the so-called blow-by phenomenon in which the gaseous mixture which flowed into the cylinder is discharged into atmospheric air from an exhaust port together with combustion gas occurs. The fuel quantity of the blow-by phenomenon of gaseous mixture which the hydrocarbon (HC) which is a non-burned component will be contained in emission gas so much, and is consumed vainly increases. [0003] Although what is necessary is just to bring forward the close stage of an exhaust port with a piston in order to suppress a blow-by phenomenon, the combustion gas which remains inside a cylinder increases, the irregular combustion by incomplete combustion, a flame failure, etc. increases, the hydrocarbon contained in emission gas after all increases, and there is a difficulty that an engine output declines.

[0004] Then, an air duct is connected to the part close to the scavenging port of a scavenge air passage indicated by JP,7-139358,A, JP,7-189704,A, JP,7-269356,A, etc., and a check valve is prepared in this air duct, and throttle valve actuation of an engine is interlocked with and he is trying to adjust the air flow rate of this air duct of about two lines in an internal combustion engine. If a crank case becomes negative pressure like 2 line at the time of lifting of a piston according to the above-mentioned internal combustion engine, the gaseous mixture from a carburetor is attracted from an inlet port to a crank case, and simultaneously, the air of an air duct will push a check valve open and will flow into a scavenge air passage thru/or a scavenging port. If a piston descends by explosion of gaseous mixture, an exhaust port will open near a bottom dead point, and combustion gas will be discharged. Then, if a scavenging port opens, the air of a scavenge air passage will be first supplied to a cylinder by the positive pressure of a crank case, and, subsequently the gaseous mixture of a crank case will be supplied to a cylinder. While the exhaust port is open, only the air spouted from a scavenging port to a cylinder at the beginning flows into an exhaust port, and by the time gaseous mixture reaches to an exhaust port continuously, an exhaust port will close.

[0005] An internal combustion engine is connected with the arm and rod which the arm combined with the shaft which insists upon the above-mentioned throttle valve which opens and closes the inhalation-of-air way of a carburetor combined with the shaft of the butterfly valve of an adjustment device, and a throttle valve and the butterfly valve of about two lines are constituted so that it may interlock, open and close. However, in order to carry out interlocking connection of the throttle valve of a carburetor, and the butterfly valve of an adjustment device, two or more rods are needed and structure becomes complicated. Like 2 line, especially by the internal combustion engine with three scavenging ports, the adjustment device or rod of a scavenging port and the same number is needed, structure not only becomes very complicated, but dispersion arises in the opening of a butterfly valve between adjustment devices, and synchronous operation (alignment) with a throttle valve becomes difficult. The opening of the butterfly valve interlocked with a throttle valve may change, and an engine's scavenging-air situation may change to the inside of a long-term activity. In order to prepare an adjustment device in an engine body, a projection and the whole become [an adjustment device] large-sized from an engine body. Moreover, it is difficult from constraint of mounting space etc. to equip with an air cleaner each air duct which becomes independent, respectively so

that a foreign matter may not infiltrate into an engine from each air duct.

[0006]

[Problem(s) to be Solved by the Invention] It is in the thing which the technical problem of this invention has an easy and small configuration, a pneumatic control valve carries out interlocking connection in view of an above-mentioned problem at the throttle valve of a carburetor, and dispersion does not produce in whenever [valve-opening] between each air duct and for which the carburetor for internal combustion engines of about two lines is offered.

[0007]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, the configuration of this invention connects an air duct to the part close to the scavenging port of the scavenge air passage which opens for free passage the scavenging port opened and closed by the piston and a crank case. In the carburetor of the like [2 line] internal combustion engine which prepared the check valve which allows the flow of the other air in the scavenge air passage at this air duct The pneumatic control valve which is interlocked with a throttle valve between an air cleaner and a carburetor, and controls the air content of an air duct is inserted, and it is characterized by attaching an air cleaner, a pneumatic control valve, and a carburetor in an engine body in one.

[0008]

[Embodiment of the Invention] In this invention, an air cleaner, a pneumatic control valve, and a carburetor are attached in an engine in one, gaseous mixture is inhaled to an engine's crank case, and the throttle valve and pneumatic control valve of a carburetor are inhaled to the part to which the air which passed the pneumatic control valve approaches the scavenging port of each scavenge air passage through an air duct as they are connected with one rod and a throttle valve opens them.

[0009]

[Example] Drawing 1 is a like [2 line] internal combustion engine's side-face sectional view equipped with the carburetor concerning one example of this invention. The engine body A has a cylinder 32 combined by the upper part of a crank case 39, and fitting of the rise and fall of a piston 34 of it is made possible to a cylinder 32. A piston 34 is connected with arm 38a of the crankshaft 38 supported by the crank case 39 by the connecting rod 42, and combustion chamber 32a is divided into it between the upper bed section of a cylinder 32, and a piston 34. The head of a cylinder 32 is equipped with an ignition plug 31, and the exhaust port 35 and scavenging port 33 which are opened to the wall of a cylinder 32 in the bottom dead point of a piston 34 are formed. An exhaust port 35 is open for free passage to atmospheric air through the exhaust air muffler 44, and a scavenging port 33 is opened for free passage through scavenge air passage 33a mentioned later to crank case 39a.

[0010] Carburetor B is attached in the inlet port 37 of a crank case 39 through the heat insulation tubing 21 equipped with inlet-valve (reed valve) 37a. In detail, Carburetor B, and the pneumatic control valve C and air cleaner D of about two lines are attached with two mounting bolts which are not illustrated in one through the heat insulation tubing 21 to an internal combustion engine's crank case 39. Carburetor B fits the throttle valve 15 which has a drawing hole in the body which crosses the inhalation-of-air way of a body 16, and has a throttle lever 10 combined with the shank 12 of the upper bed of a throttle valve 15. The constant-pressure combustion chamber 19 and the atmospheric-air room 17

are divided by the lower part of a body 16 with the film 18. The fuel of the fuel tank which is not illustrated is serially supplied to the constant-pressure combustion chamber 19 by the fuel pump, and it is always held at 1 constant pressure. A fuel nozzle 20 projects from the constant-pressure combustion chamber 19 to the drawing hole of a throttle valve 15. Intermediary **** [as] to which **** 14 which extracts from the shank 12 of a throttle valve 15, and projects to a hole is fitted in a fuel nozzle 20, and adjusts the opening of a fuel nozzle hole. If the force of a spring is resisted and a throttle lever 10 is rotated, the opening of a throttle valve 15 increases, according to the cam mechanism simultaneously formed between the throttle lever 10 and the upper bed wall of a body 16, **** 14 will go up together with a throttle valve 15, and the opening of the fuel nozzle hole of a fuel nozzle will increase.

[0011] According to this invention, the check valve 27 which allows the flow of the air to the part which approaches the scavenging port 33 of scavenge air passage 33a from the exterior is formed in the wall of a cylinder 32. For this reason, it is open for free passage to the part which approaches the scavenging port 33 of scavenge air passage 33a in an end, and the communication trunk 26 equipped with the check valve 37 is opened for free passage to atmospheric air through an air duct 25, a pneumatic control valve C, the inhalation-of-air way 9, and an air cleaner D in the other end.

[0012] It has a pneumatic control valve C in the scavenging port 33 and the valve path 7 of the same number which extend upwards from the inhalation-of-air way 9 in the Johan section of the body 8 of the letter of a block which has the inhalation-of-air way 9, and cross valve chest 8a (drawing 3) in it. The upper bed of the valve path 7 has a communication trunk 6 combined. As shown in drawing 3 , the rod-like valve element 5 is fitted in valve chest 8a of the shape of a cylinder which intersects perpendicularly with the inhalation-of-air way 9 of a body 8 pivotable. The valve element 5 is equipped with valve through-hole 5a which crosses valve chest 8a and in which the valve path 7 and a free passage are possible, and if a valve element 5 is rotated, the area of the valve path 7 will change. The soffit of each valve path 7 is open for free passage to the path 53 which intersects the inhalation-of-air way 9. The edge of a path 53 is closed by the lid 52. It is connected to the communication trunk 26 attached in the wall of a cylinder 32 by the air duct 25 which consists of tubing, the air outlet 6, i.e., the communication trunk, of a pneumatic control valve C.

[0013] The bolt insertion hole 54 is formed in a symmetric position across the inhalation-of-air way 9 at the body 8 of a pneumatic control valve C. A pneumatic control valve C combines a lever 23 with the other end of a valve element 5, it consists of single revolution mold throttle valves, stops the snap ring 51 for ***** at the end of the valve element 5 fitted in valve chest 8a, and has the end of the return spring 22 twisted around the heel of a valve element 5 stopped by the body 8, and a lever 23 stops the other end, respectively. As shown in drawing 2 , the throttle lever 10 of Carburetor B and the lever 23 of a pneumatic control valve C are connected by the minimum distance with a rod 13. When a throttle lever 10 is operated in the open direction, a pneumatic control valve C makes the air content to an aperture and a scavenging port 33 increase.

[0014] As shown in drawing 1 , the air which the air cleaner D combined among both the cases 2 and 4 of the cube type which consists of segmenter for 2 minutes on both sides of the filter 3, and was inhaled from intake 2a of a case 2 flows to an inlet port 37 through a filter 3, a case 4, each inhalation-of-air way 9 of a pneumatic control valve C and

Carburetor B, the heat insulation tubing 21, and inlet-valve 37a.

[0015] Next, actuation of the carburetor for 2 stroke internal combustion engines by this invention is explained. By the time a piston 34 reaches to a top dead center, it will fill up with gaseous mixture from an inlet port 37 to crank case 39a, and it fills up with air from a communication trunk 26 to scavenge air passage 33a and a scavenging port 33. On the other hand, the compressed gaseous mixture exists in a cylinder 32 in the condition just before a piston 34 reaches to a top dead center. If the gaseous mixture into which the cylinder 32 was compressed is lit by the ignition plug 31, explosion of gaseous mixture will arise inside a cylinder 32, and a piston 34 will descend. When a piston 34 descends, the gaseous mixture of crank case 39a is pressurized, simultaneously, the pressure of crank case 39a is transmitted to a scavenging port 33 through scavenge air passage 33a, and the air of a scavenging port 33 is also pressurized.

[0016] If a piston 32 descends further, the combustion gas of a cylinder 32 will be discharged for an exhaust port 35 into atmospheric air through an exhaust port 35 and the exhaust air muffler 44 at the beginning of an aperture. Shortly after an exhaust port 35 opens, the air by which the scavenging port 33 was pressurized will flow into a cylinder 32, and a scavenging port 33 will perform scavenging which extrudes the combustion gas which remains in the cylinder 32 to an exhaust port 35 at the beginning of an aperture. Subsequently, the gaseous mixture of crank case 39a flows into a cylinder 32 through scavenge air passage 33a and a scavenging port 33. Air flows previously in the condition which does not mix the air which flows into a cylinder 32 from a scavenging port 33, and the gaseous mixture which flows into a cylinder 32 through scavenge air passage 33a from crank case 39a, and a scavenging port 33 of having dissociated, and, subsequently gaseous mixture flows.

[0017] Therefore, only the air which flowed into the cylinder 32 previously is discharged from an exhaust port 35 together with combustion gas, and the gaseous mixture which flows into a cylinder 32 after air piles up in a cylinder 32. That is, since it gets mixed up with gaseous mixture flowing into a cylinder 32 and an exhaust port 35 closes, the blow-by phenomenon in which gaseous mixture flows out into atmospheric air through the direct exhaust port 35 does not happen. By making the open stage of an exhaust port 35 late, scavenging air of combustion gas becomes certain and can contribute to the improvement in an output of an engine greatly. And the amount of the non-burned component (HC) contained in emission gas is reduced, and the futility of a fuel is lost.

[0018] Next, if it moves to the stroke in which a piston 34 goes up from a bottom dead point and reaches near a top dead center, crank case 39a will be in a negative pressure condition, and the gaseous mixture by which inlet-valve 37a of an inlet port 37 was generated with the aperture and Carburetor B will be inhaled from an inlet port 37 to crank case 39a. The gaseous mixture which flowed into the scavenging port 33 and remains in the last stroke simultaneously is returned to crank case 39a. Moreover, a check valve 27 is opened by the negative pressure of crank case 39a, and air is inhaled to crank case 39a through a pneumatic control valve C, an air duct 25, a check valve 27, and scavenge air passage 33a from an air cleaner D. In this way, if a piston 34 reaches to a top dead center mostly, crank case 39a was filled up with gaseous mixture, and a scavenging port 33 will be filled up only with air.

[0019] According to this invention, as mentioned above, if ***** crank case 39a and scavenge air passage 33a will be in a negative pressure condition to lifting of a piston 34,

a check valve 27 will be opened and external air will be inhaled through a communication trunk 26 to scavenge air passage 33a and a scavenging port 33. A means to introduce air to scavenge air passage 33a and a scavenging port 33 may form the communication trunk 26 which is directly open for free passage to atmospheric air, and the easy structure where the check valve 27 was formed in the interior of a communication trunk 26 is sufficient as it. In case [of / like the lifting line of a piston 34] it comes to be mostly carried out for the whole term, the air charging efficiency to scavenge air passage 33a and a scavenging port 33 improves and combustion gas is scavenged, the vigor of the air which flows into combustion chamber 32a from scavenge air passage 33a and a scavenging port 33 becomes strong, and the scavenging-air engine performance of installation of the air to scavenge air passage 33a and a scavenging port 33 improves.

[0020] In addition, in an above-mentioned example, a separate air cleaner may be connected with Carburetor B at a pneumatic control valve C. Moreover, although the membrane type carburetor used abundantly at a pocket activity machine was illustrated to drawing 1, this invention is not limited to this kind of carburetor.

[0021]

[Effect of the Invention] By having inserted the pneumatic control valve which is interlocked with a throttle valve between an air cleaner and a carburetor, and controls the air content of an air duct as mentioned above, and having attached the air cleaner, the pneumatic control valve, and the carburetor in the engine body in one, the air which flows to a pneumatic control valve and a carburetor is defecated with a single air cleaner, and this invention can avoid the whole engine's large-sized-ization, and has the advantage which can use elegance as it is conventionally as a carburetor or an air cleaner.

[0022] Since the throttle valve and pneumatic control valve of a carburetor are connected with one rod by the minimum distance, the whole engine's large-sized-ization is avoidable also at this point.

[0023] The die length of each air duct which connects each air outlet of a pneumatic control valve and the air inlet of each scavenge air passage can be set as an optimum value, and the synchronous operation of a throttle valve and a pneumatic control valve does not change to the inside of a long-term activity.

[0024] Since a pneumatic control valve consists of a revolution mold throttle valve, a fabrication is easy and can avoid large-sized-ization of a pneumatic control valve.

CLAIMS

[Claim(s)]

[Claim 1] In the like [2 line] internal combustion engine which prepared the check valve which connects an air duct to the part close to the scavenging port of the scavenge air passage which opens for free passage the scavenging port opened and closed by the piston and a crank case, and allows this air duct the flow of the other air to a scavenge air passage The carburetor for 2 stroke internal combustion engines characterized by having inserted the pneumatic control valve which is interlocked with a throttle valve between an air cleaner and a carburetor, and controls the air content of an air duct, and attaching an air cleaner, a pneumatic control valve, and a carburetor in an engine body in one.

[Claim 2] The carburetor for 2 stroke internal combustion engines according to claim 1

which connected the air outlet of said pneumatic control valve to the part close to the scavenging port of said scavenge air passage.

[Claim 3] The carburetor for 2 stroke internal combustion engines according to claim 1 which connected the part close to the air outlet of said pneumatic control valve, and the scavenging port of said scavenge air passage by the air duct which a common air duct or a common scavenging port, and the same number became independent of.

[Claim 4] Said pneumatic control valve is a carburetor for 2 stroke internal combustion engines according to claim 1 which is a revolution mold throttle valve.

[Translation done.]